OBSERVATIONS

ON A

FURTHER SERIES OF CASES OF RELAPSING
TYPHLITIS TREATED BY OPERATION.¹

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In a paper read before the Harveian Society² in April, 1893, I gave a brief account of a series of 14 cases of relapsing typhlitis treated by operation. I would now add to that account a further series of 18 cases of relapsing typhlitis in which I have carried out an operation during the quiescent period. I have excluded those far more numerous cases of acute typhlitis in which an incision is called for the purpose of evacuating pus, and those not uncommon examples of operation in chronic cases for the relief of a persisting sinus.

In all the present instances the operation for the removal of the appendix was carried out when every symptom of the inflammatory trouble had disappeared, in accordance with the proposal I first made in 1886.³ All the 18 patients made a good recovery except one (Case VII). This case represents the only fatality I have ever had from this operation.

It has been now apparently demonstrated that that form of localised peritonitis which is known by the names of typhlitis, perityphlitis, and appendicitis is due in the great majority of instances to the bacterium coli commune. Thus, Tavel and Lanz examined 23 cases of trouble in the appendix. The examination was made either of the pus within or without the appendix or of the exudation into the peritoneal cavity immediately around the diseased process. The material for this bacteriological investigation was obtained during the patient's life. In 3 no micro-organisms were found. In 19 examples the colon bacillus was found either alone or in association with other pathogenic germs. The streptococcus was found in several cases; the pneumococcus was met with in 2 examples, but not in pure culture. The staphylococcus pyogenes citreus was in 1 instance the only micro-organism discovered.

The bacterium coli commune exists normally in the human body, and is said to be the most abundant and the most constant of the bacteria found in the individual in health. Its natural habitat is the bowel, and it has been demonstrated to be present along the whole length of the alimentary canal from the mouth to the anus.

The micro-organism has this notable feature, that it varies greatly in its virulence. So far as experiments upon animals are of value, it would appear to be harmless when taken from the normal intestine. If, however, the bowel become the seat of almost any morbid condition, then the bacillus becomes at once virulent. Virulence has been found to be developed in cases in which the bowel was obstructed, strangulated, or inflamed, in congestion of the intestine, in diarrhoea, in advanced constipation, and in other abnormal states. This point is of no little moment in the etiology of perityphlitis. In a large number of cases the attack is preceded by constipation, or by the decomposition of undigested matters in the bowel, or by diarrhoea, or by exposure to cold, or possibly, although rarely, by injury.

If measures can be adopted to render the bacterium non-virulent, then a great step has been taken in the preventive treatment of the affection.

Two elements at least would appear to be necessary to produce an attack of localised peritonitis through the medium of the appendix. The first is such a condition within the bowel as will render the colon bacillus virulent; and the second is such a lesion in the appendix as will permit that bacillus to reach the peritoneum. The invasion of the peritoneum by the micro-organism gives rise to sudden, violent, and acute

symptoms, to an outbreak so abrupt and intense as to produce the impression that the appendix has become perforated. Perityphlitis due primarily to a sudden definite perforation of the appendix is certainly uncommon. In not a few instances in which the last attack was sudden and acute I have failed to detect any visible breach in the outer surface of the appendix.

I have elsewhere pointed out the morbid changes found in this little process in cases of perityphlitis.

If a large series of cases of this affection be passed in review, it will be found that the number of instances in which there has been only one attack is much greater than that in which there have been several attacks. In a certain proportion of the examples of a single attack there has been an abscess, and the great majority of the subjects of typhlitis who have passed through the stage of suppuration are thereby rendered free from any further attacks. The cause of the trouble has been removed by the suppurative process. The abscess cavity may apparently heal, and what is improperly called a second abscess may form, but that does not as a rule represent any fresh mischief at the original seat of disease.

Among the morbid conditions of the appendix which are necessary to produce relapses, the following are probably the most common. The lumen of the appendix is in some places narrowed or occluded, and the contents of the little tube are unable to escape. Such occlusion may result from a twisting of the organ, or from an acute bending of it, due to the contraction of adhesions, or from a cicatrix in its interior due to extensive ulceration. In other examples a quantity of inflammatory material, amongst which may be found the gangrenous tip of the appendix, is embedded within a mass of firm adhesions as an explosive within a bomb. In a third series of examples the organ shows a condition well adapted for volvulus, or there is lodged within it a calculus or a faecal concretion.

Mere ulceration alone would not appear to be a cause, certainly not a common cause, of relapses. Perforation, in the ordinary sense of the term, would appear to play a very little part.

I have in previous papers ventured to indicate those cases which would appear to be best suited for operation, and which indeed would seem to be incapable of being treated by any other measure. The cases adapted for operation are comparatively few, and the simplicity of the surgical treatment has rather cast into the shade the somewhat neglected measures of the physician. Instances in which there is abiding tenderness and some swelling in the caecal region, with very frequent attacks of pain and fever, are, I believe, amenable to no measure short of operation. In all such cases I have found the appendix to be distended with pus.

In examples not so marked such measures as the following may bring the attacks of typhlitis to an end:

1. The digestion must be attended to. If the teeth are defective the deficiencies must be made good. The bolting of ill-masticated masses of food is not an uncommon exciting cause of perityphlitis. The meals must be taken at regular hours, the patient must eat slowly, and must rest after each meal. Not a few attacks in active business men can be ascribed to a hurried lunch, which is eaten "with the loins girded" one day at 1 o'clock and another day at 3. The food must be simple and digestible, and of such a kind as to leave as little *débris* as possible in the intestine.

2. The bowels must be made to act daily. The aperient given should be frequently changed.

3. Massage of the abdomen appears to have in many cases a very admirable effect, partly, it may be, by promoting the absorption of inflammatory exudations, and partly by encouraging a normal action of the bowels. With massage may be associated suitable exercise.

4. The use of some intestinal antiseptic. The most efficient would appear to be salol. It should be given in a powder (in milk or in a cachet) in 10-grain doses night and morning. Salol in the form of tabloids is very apt to leave the rectum in precisely the same form as it entered the mouth. I have seen such tabloids discharged from an artificial anus entirely unchanged. The value of this drug can be well observed in examples of an artificial anus made in the caecum. The escaping matter may be very foul and mixed with bubbles of gas, and when in this condition is apt to act as a

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corrosive upon the skin, producing great distress. A more wholesome condition of the discharge—as shown markedly by the improvement in the skin—very soon follows upon the use of salol. In only one case have I seen carboluria attend the use of this drug.

The actual operation itself I have elsewhere described. It is a measure which may prove to be exceedingly difficult or exceedingly easy. Some of the cases have been most trifling. On the other hand, in two instances I failed to remove the appendix after very persisting attempts. It is impossible to predict beforehand the features of the operation. The attacks may have been violent and numerous, and the removal of the diseased process nevertheless prove to be a mere trifle. On the contrary, some of the most difficult operations I have met with have been in cases in which I had hoped from the history of the attacks to have encountered no complications. With one exception I have in the cases enumerated below made the incision directly over the cæcum, that is, about in the position occupied by Mr. Cripps's incision for iliac colotomy on the left side. In one or two instances the incision was lower down. In the case mentioned as an exception the abdomen was opened in the median line. The peritoneal cavity should be opened with caution. The cæcum may be adherent immediately beneath the line of the incision, and may be readily cut into.

The dealing with adhesions constitutes the real difficulty of the operation. An adherent appendix may hide a perforation in the cæcum. I have met with a thinned and dilated ureter among the adhesions and realised that it could readily be mistaken for an appendix. This structure and the iliac veins are in some danger in certain of these operations.

The serous coat of the appendix is divided and the little process is ligatured with silk in the groove thus made. The projecting mucous membrane is then cut away, and the detached peritoneum is then carefully stitched over the stump. When this cannot be done a hood of peritoneum is obtained from the neighbouring serous membrane. Throughout the operation the "vivisector's tool" is most useful. Iodoform is dusted over the exposed area of peritoneum and the wound is closed by means of a continuous silk suture of the peritoneum and a series of silkworm-gut sutures, which involve the muscles and skin.

Of the subjoined 18 cases, 14 occurred in private practice and 4 were patients in the London Hospital.

SERIES OF CASES.

CASE I. *Appendix found as a Strap across the Cæcum.*—A lad, aged 13. Had had two very severe attacks; one two years and a-half ago, and one eight months ago. The last attack laid him up six months. The appendix was easily to be felt. Operation, June, 1893. Appendix adherent to the left layer of the mesentery, and fixed as a strap over the left side of the cæcum, was removed. The process was of unusual length. An ulcer existed at its extremity, and here had apparently been a perforation. There were many adhesions about the appendix, to which, also, the omentum was adherent. Two enlarged glands found in the mesentery were removed. The operation occupied one hour. The patient made an excellent and speedy recovery. (See Case III.)

CASE II. *Remarkable Amount of Inflammatory Material around the Appendix.*—A lady, aged 47. Had four attacks in January, February, March, and June, 1893. The first three were comparatively slight. The last was severe, and the patient was not free from local pain four weeks after the attack began. Operation in July, 1893. There were numerous adhesions. The appendix was bent upon itself, was adherent to the cæcum, and was distended with muco-pus. Behind the cæcum was a dessertspoonful of custard-like material. This was scraped away with a sharp spoon after the appendix had been removed. The cavity was dusted with iodoform, and a drain inserted for sixteen hours. The wound healed without supuration, and the patient did well in all respects. (See Case IV.)

CASE III. *Appendix Fixed as a Strap across the Cæcum.*—A gentleman, aged 42. Appendix removed November, 1893. Had had four great attacks, followed by much prostration and slow recovery. The first laid him up from January to March, 1889; the second from October, 1889, to March, 1890; the third from May to June, 1891; the fourth was in November, 1893. There had been many minor attacks. The appendix was fixed like a strap over the front of the cæcum, and was adherent by its tip to the anterior abdominal parietes. The removal was difficult, and I ultimately excised it in three pieces, owing to the fear that there might be a hole in the cæcum. There were many adhesions. The appendix was the size of the adult forefinger, and was full of stinking pus. No drain was used. An uninterrupted recovery followed.

CASE IV. *A Complex Case with Two Perforations in Cæcum.*—A gentleman, aged 42. Appendix removed November, 1893. His first attack of severe perityphlitis was in 1874. Several minor attacks followed. The second severe attack was in 1877, when he was invalided for four months. Some minor attacks followed until 1882. He was then quite free for five years. Then he became troubled again by slight attacks, which came on every few months or few weeks, and laid him up each time in bed from one to three days. The third severe attack was in October, 1893. The operation was performed as soon as recovery had taken place, that is, in four

weeks. On account of the considerable amount of thickening which was to be felt in the iliac fossa, the incision was made in the median line. There were extensive adhesions, and much omentum was cut away. The tip of the appendix—greatly thickened—was adherent to the cæcum. When it was freed two perforations in the cæcum were discovered, and were closed by sutures. Behind the cæcum a cavity was discovered filled with a custard-like substance. This collection extended as far down as Poupart's ligament. To the wall of this cavity the ileum was adherent. The cavity was scraped out and dusted with iodoform. (Cf. Case II.) No drain was used. The operation lasted one hour and a quarter. The patient made a good and speedy recovery without a bad symptom of any kind.

CASE V. *In which a Stony Concretion was found.*—A gentleman, aged 17. Appendix removed December, 1893. He had had five attacks of perityphlitis, namely, in December, 1892, and in June, July, August, and September, 1893. The first four attacks laid him up in bed from two to fifteen days. The fifth attack was very severe and he nearly lost his life. From this attack he never quite recovered, and was, indeed, confined to bed up to the time of operation. There was much local tenderness, and any movement brought on indications of an attack. The adhesions were extensive, and the appendix was found with difficulty. About the cæcum was much of the custard-like matter noticed in Cases II and IV. This was scraped away. The appendix was adherent to the ileum, was filled with muco-pus, and contained a large and stone-like concretion. A drainage tube was introduced. The patient made a perfect recovery. No supuration occurred in the wound. (See also Cases xi and xv.)

CASE VI. *Large Appendix full of Pus.*—A girl, aged 12. The appendix was removed February, 1894. The first reported attack was in September, 1893. It came on after eating many raisins and some green apples. From the accounts given—the child was abroad at the time—the symptoms were rather those of acute intussusception. The patient was exceedingly ill. From this date until the time of the operation the patient had slight attacks of perityphlitis almost every ten days. The symptoms were sudden pain, vomiting, constipation, a temperature of 100° to 102° F., and great abdominal tenderness. The patient would be confined to bed for about three days on each occasion; the usual interval of freedom was seven days; the longest interval was from January 20th to February 2nd. The operation was performed as soon as the February attack had subsided. The appendix was behind the cæcum and ileum. It was short, was about the size of an adult thumb, and was full of stinking pus. At its base it had been twisted upon itself and nearly closed. There were considerable omental adhesions. The operation presented no difficulties. The child made a perfect recovery.

CASE VII. *A Case that ended Fatally.*—This case represents the only death I have ever had after this operation. A gentleman, aged 35, had had five attacks of perityphlitis, in November, 1893, December, 1893, February, 1894, March, 1894, and April, 1894, respectively. Since December, 1893, he had lived on liquid food. Two of the attacks had been very severe. He was never free from a sense of discomfort in the right iliac region. He was much constipated. The operation was performed in May, 1894. Before the operation the patient was in a condition of considerable nervous excitement and on account of this the operation was twice postponed. The appendix was of remarkable dimensions, measuring 3½ inches by 1 inch in width. Its lumen was occluded near the cæcum and it was distended with pus. The operation presented no difficulty. The patient was sick on recovering from ether and soon began to develop a condition of nervous restlessness which I have never seen equalled. Except when quieted with morphine it is literally accurate to state that he never ceased to move and to talk. He complained of pain, but the abdomen was never tender and never distended in the least. There was no vomiting. The temperature rose to 99.5 on the evening of the second day, but with that exception it was normal. The bowels were opened by an enema on the third day. What food he was allowed to take he took readily and without being sick. He continued his ceaseless movements and remained in the same condition of excitement until his death on the fourth day. When in the act of dying he vomited, this being the only time he was sick after he had recovered from the anæsthetic. What was the actual cause of death is difficult to state as there was no post-mortem examination.

CASE VIII. *In which it was impossible to remove the Appendix.*—The patient was a gentleman, aged 30. The operation was carried out in June, 1894. There had been a very severe attack of perityphlitis in boyhood, and since then the patient had had constantly recurring slight attacks. These were represented by pain, fever, vomiting, great tenderness over the right iliac fossa, and constipation. Each attack laid the patient up in bed from one to three days. So frequent were the attacks—sometimes three in a month—that the patient, who was a most active and intelligent man, had been unable to follow any profession, and had to restrict himself to a rigid dietary. Some induration was to be felt in the upper part of the iliac fossa. For a considerable time I was unable to demonstrate the abdominal cavity owing to the adhesions. These were remarkably dense, and served to obliterate the anatomical details of the bowel. The cæcum was completely buried in a dense mass of adhesions, and hidden here was, no doubt, the appendix. I was not disposed to undertake the serious risk of opening up this area, especially as the adhesions obliterated both the ureter and the iliac veins, structures in no little risk of being wounded in these operations. I divided adhesions wherever possible, removed such omentum as was attached, and closed the wound. The patient made an excellent recovery, and has been free of any attacks since the operation, a period now of over six months. (See also Case XIII.)

CASE IX. *The Appendix Closed by Bending.*—The patient, a girl of 13, had had seven marked attacks of typhlitis within the last few years, and a few minor attacks. The appendix was removed in November, 1894. It was found to be acutely bent upon itself, so that the tip nearly touched the root of the process. This bending was the result of adhesions. The lumen of the tube was occluded at the point of bending. The operation was exceedingly simple, and the patient recovered perfectly. (See also Case XII.)

CASE X. *An Appendix Adherent to the Anterior Parietes.*—A gentleman of 60. The appendix was removed in November, 1894. In the summer he had had an exceedingly severe attack of perityphlitis, in which he nearly

lost his life, and from which he never made a complete recovery. There was a tender lump left in the right iliac fossa, which became the seat of pain and swelling on movement and after any error in diet. The appendix was found buried in a dense mass of fibrous tissue, adherent to the abdominal wall. It was difficult to demonstrate the abdominal cavity, and in order to remove the appendix, which was inseparable from the adhesions around it, some of the muscular tissue of the belly wall had to be removed. The mass removed was the size and shape of a large walnut. The buried appendix contained pus. The omentum was adherent. The operation occupied an hour and a-half. The great difficulty was in entering the abdominal cavity. A speedy incision would have involved the cæcum, which was adherent immediately under the surface wound. The patient's recovery was delayed by a small abscess which appeared in the wound after a definite exposure to cold and after the patient was about again, two months after the operation.

CASE XI. *In which a Stony Concretion was found.*—The patient was a boy of 10. The operation was performed in December, 1894. A year previously he had had a very severe attack of localised peritonitis, which at one period closely resembled typhoid fever. Subsequent to this he had eight definite attacks of perityphlitis, two of which were very severe. The boy was rendered an invalid. The operation was much complicated by adhesions, which extended as far as the median line. The cæcum, terminal ileum, appendix, and free end of the omentum formed one confused mass. The appendix was discovered with difficulty. It was buried in a clump of adhesions derived from the omentum. Its tip was represented by a slough. Its cavity contained muco-pus and a small hard stony concretion the size and shape of a cherry stone. The patient made an uninterrupted recovery.

CASE XII. *The Appendix Closed by Bending.*—A lady, aged 24, whose appendix was removed on January 9th, 1895. The first attack was four years ago; since then there had been twelve definite attacks and many minor ones. The patient was rendered more or less of an invalid. The operation was very simple. There were no adhesions except those on the appendix, which was acutely bent upon itself as in Case IX. The tube beyond the bend contained pus. An enlarged lymphatic gland near by was removed. The patient has made a good recovery.

CASE XIII. *In which it was impossible to Remove the Appendix.*—Operation January 17th, 1895. The patient, a lady of 25, had her first attack four years ago; since then she has had on an average eight attacks in the year. The adhesions were as extensive as in Case VIII. The cæcum was lost in the pelvis among old and tough adhesions. I was unable either to bring it into view or to discover the appendix. Many feet of the ileum were matted together in great confusion. The omentum was adherent. I divided as many of the adhesions as was possible, but left many untouched on account of the bleeding. The patient has made an uninterrupted recovery, but it is as yet impossible to say what effect the operation will have upon the attacks.

CASE XIV. *A Simple Case.*—A gentleman, aged 24. Appendix removed January 24th, 1895. First attack in January, 1894, was moderately severe; second and third attacks laid him up two and four weeks respectively; fourth attack in November was very severe, and the recovery was slow and interrupted. The operation was simple. The appendix, as shown by its mesentery and the ulceration in its interior, had evidently been twisted upon itself. There were no adhesions except about the appendix, which was, however, free from attachments. The patient's recovery has been rapid and uneventful.

CASE XV. *Three Concretions in Appendix; Perforation in Cæcum.*—London Hospital. Operation May 14th, 1894. Man, aged 48. Three attacks of perityphlitis, all of some severity. The appendix was found in the ileo-cæcal fossa. It was adherent to the cæcum, and contained three small stony concretions. In setting it free from the cæcum a perforation in the viscus was made evident. This hole was closed with a double row of sutures, and the appendix removed. The patient made a perfect recovery.

CASE XVI. *Appendix Distended with Pus.*—London Hospital. Appendix removed June 1st, 1894. Woman, aged 32. Patient had had eight attacks of perityphlitis within the previous nine months. During this time she had been confined to her bed almost continuously. The lumen of the appendix was occluded close to the cæcum. The tube beyond was distended with pus. There were no adhesions, and the operation was most simple. Patient made a sound recovery.

CASE XVII. *Appendix Distended with Pus.*—London Hospital. Appendix removed September 28th, 1894. The first two attacks of perityphlitis were respectively eight and six years ago. During the last twelve months the patient had had four attacks, making six in all. The lumen of the appendix was occluded, and the tube beyond was filled with stinking pus. There was some difficulty with adhesions. Perfect recovery.

CASE XVIII. *In which the Appendix was Adherent to the Rectum, and contained a Faecal Concretion.*—London Hospital. A woman, aged 27. Appendix removed January 11th, 1895. The patient had had eleven attacks of varying severity, and which had confined her to bed for periods varying from two days to three weeks. The operation was attended with considerable difficulty. The omentum was adherent to the apex of the cæcum, and was divided between ligatures. The appendix, after some search, was discovered in the pelvis, where it was adherent to the rectum. Much time was occupied in separating the little process from that viscus. I was afraid there might be a perforation into the rectum which (at the depth at which it lay) might be difficult to close. The bowel, however, was sound. After clearing away the remaining adhesions the appendix was removed. It contained a faecal concretion, composed of concentric laminae of various tints, about the size of a Spanish nut. It was readily cut with a knife. The operation occupied over one hour. The patient has recovered without a bad symptom.

THE Departmental Committee appointed by the Home Secretary to inquire into the various processes connected with the mixing and making of brass and kindred amalgams paid a visit to Glasgow last week. Evidence was taken and various brass foundries were visited.

REMARKS

ON
EXCISION OF THE RECTUM, WITH A REPORT OF
FOURTEEN CASES, AND A NEW RECTAL
TRUSS.¹

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PERHAPS one of the best recent advances in the operative treatment of malignant disease is the gradual replacement in cancer of the alimentary canal of operations affording only temporary alleviation by those which have for their aim not simply the relief, but the cure of the patient. Thus I find in my practice excision of the rectum and colectomy are gradually replacing colotomy. In time possibly pylorotomy may supersede gastro-enterostomy; but gastrostomy for cancer of the œsophagus, if doomed to disappear, must fail on its own merits, as it is hardly likely that a radical operation can ever take its place.

Excision of the rectum, except in the minor degree, has not been warmly advocated by surgical writers in this country. Even the pioneer, Harrison Cripps, out of an experience of 400 cases of cancer of the rectum coming under his notice, has only actually operated in 38 (1892), and does not appear to approve of the major operation. Treves² does not even mention the name of Kraske or Alexander in connection with the subject. He states that the term proctectomy is misleading, "as the rectum is never excised, but only a comparatively small part of it." He mentions 3 inches as the usual limit, and considers that "in no case should the peritoneum be deliberately opened." Jacobson³ only mentions the high operation to condemn it, but American and Continental surgeons regard it with much more favour. The writer's experience, very much more limited than that of Mr. Cripps, is that the most extensive operations upon the rectum for cancer are in every way more hopeful than those performed for much less advanced disease in the mouth, and which almost all surgeons would consider it a duty to undertake.

In the same way that cancer of the tongue requires different procedure for its removal, in accordance with the situation and extent of the disease, so proctectomy varies considerably, and a different operation will be called for in each of the four following classes of case:

1. Carcinoma of the lower end of the bowel all within easy reach of the finger.
2. Growths which have commenced high up, but are or have come down to be within reach of the finger.
3. Extensive growths commencing low down, but the limits of which cannot be defined.
4. Growths too high to be recognised without laparotomy.

Of the first class Cases I, II, and IX were satisfactory examples. Cases VIII and XI were more of the nature of class 3; that is, the tumours were large, but the upper edge was within reach of the finger. In these five cases the lower part of the rectum was removed by the operation advocated by Mr. Cripps. First an incision is carried from the anus to the tip of the coccyx, splitting the rectum in the middle line posteriorly. If the disease is placed quite low down, incisions are next made round the anus, which is removed with the growth, otherwise it should be left. When the above incisions are completed the lower part of the bowel is freed on all sides with scissors well beyond the limits of the growth, great care being taken of the urethra. During this stage hæmorrhage is free and is I think best dealt with by operating rapidly whilst an assistant does what he can with sponge compression. Finally the bowel is divided. This was formerly effected with an *écraseur*, the wound being left to granulate. Recently, since Case II, more bowel has been drawn down, cut through with the scissors, and sutured to the posterior angle of the wound when the anus has been excised, but to the latter when it is left. In Cases VIII and XI it was necessary to remove a part of the posterior wall of

¹ Read before the Liverpool Medical Institution on February 14th

² *A Manual of Operative Surgery*, 1892.

³ *The Operations of Surgery*, 1891.